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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,013	03/22/2004	Dojin Kim	20030-02USA	2235

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JHK Law  
P.O. Box 1078  
La Canada, CA 91012-1078

EXAMINER
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FIORITO, JAMES

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/807,013	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> James A. Fiorito	<b>Art Unit</b> 1754	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/12/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities: Paragraph 79 recites the use of ammonium chloride; ammonium hydroxide should have been used instead.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 states "producing a catalytic metal using the magnetic fluid", what the applicant is claiming in this limitation is unclear, because it appears that the catalytic metal and the magnetic fluid are essentially the same.

Also, the "catalytic metal" recited throughout the claims appears to be Iron Oxide when read in light of the specification, however Iron Oxide is a metal compound and not a metal. Therefore, "catalytic metal" is unclear, as to what this is to mean.

In claim 9 it is indefinite as to what is meant by "added several times with interval."

### ***Claim Rejections - 35 USC § 103***

Art Unit: 1754

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1,3,10,12,14, and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiao '453 in view of Khalafalla '294.**

Jiao teaches a method for synthesizing carbon nanotubes using Iron Oxide (Paragraph 41) by thermal chemical vapor deposition, which comprises the steps of: coating catalytic metal on a substrate (Paragraph 37); and synthesizing the carbon nanotubes (Paragraph 54).

Jiao does not expressly state the step of producing a catalytic metal using the magnetic fluid.

Khalafalla discloses a method of producing Iron Oxide from iron chloride and ammonium hydroxide (Column 3). Jiao and Khalafalla are analogous art because they are from the same field of endeavor, namely process that use Iron Oxide.

At the time of invention it would have been obvious to form the process of Jiao including a step of producing a catalytic metal using the magnetic fluid in view of Khalafalla. The suggestion or motivation for doing so would have been to provide a method for producing Iron Oxide as required by Jiao but not disclosed.

**Claims 1-2 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Jiao '453 in view of Khalafalla '294 as applied to claims 1,3,10,12,14, and 16-20 above, and further in view of Koikeda '308.**

Jiao in view of Khalafalla does not expressly state a step adding a binder to the catalytic metal.

Koikeda teaches the use of a ceramic binder with Iron Oxide catalyst (Column 7-8). Jiao, Khalafalla and Koikeda are analogous art because they are from the same field of endeavor, namely process that use Iron Oxide.

At the time of invention it would have been obvious to a person of ordinary skill in the art to form the method of Jiao in view of Khalafalla to include a step of adding a binder to the catalytic metal in view of the teaching of Koikeda. The suggestion or motivation for doing so would have been to increase the strength of the catalyst and to improve the moldability of the catalyst (Column 7-8).

**Claims 1, 11 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Jiao '453 in view of Khalafalla '294 as applied to claims 1,3,10,12,14, and 16-20 above, and further in view of Snow '072.**

Jiao in view of Khalafalla does not expressly state a step wherein the catalytic metal is coated on the substrate by dipping the substrate in a catalytic metal solution.

Snow discloses a step wherein the catalytic metal is coated on the substrate by dipping the substrate in a catalytic metal solution (Paragraph 40). Jiao, Khalafalla and

Art Unit: 1754

Snow are analogous art because they are from the same field of endeavor, namely process that use Iron based catalysts.

At the time of invention it would have been obvious to a person of ordinary skill in the art to form the method of Jiao in view of Khalafalla to include a step wherein the catalytic metal is coated on the substrate by dipping the substrate in a catalytic metal solution in view of the teaching of Snow. The suggestion or motivation for doing so would have been to deposit the catalyst on the surface of the substrate (Paragraph 40).

**Claims 1-10, 12 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiao '453 in view of Khalafalla '294 and Koikeda '308 as applied to claim 1-3,10,12, and 14-20 above, and further in view of Tsuda '471.**

Jiao in view of Khalafalla and Koikeda does not expressly state a step adding acetone to the aqueous iron chloride solution to separate the magnetite particles from liquid.

Tsuda discloses a step adding water and acetone to the aqueous iron chloride solution to separate the magnetite particles from liquid (Column 16). Jiao, Khalafalla, Koikeda and Tsuda are analogous art because they are from the same field of endeavor, namely process that use Iron Oxide.

At the time of invention it would have been obvious to a person of ordinary skill in the art to form the method of Jiao in view of Khalafalla, and Koikeda to include a step adding water and acetone to the aqueous iron chloride solution to separate the magnetite particles from liquid in view of the teaching of Tsuda. The suggestion or

Art Unit: 1754

motivation for doing so would have been to separate the magnetite particles from liquid (Column 16).

### **Conclusion**

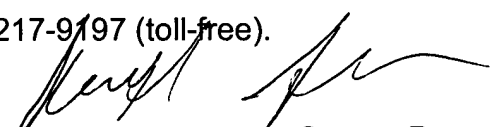
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fiorito whose telephone number is (571)272-7426. The examiner can normally be reached on Standard.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James Fiorito  
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